PHYSICAL & MENTAL EFFICIENCY

(HOW TO REMEMBER, STUDY, AND PASS EXAMINATIONS)

by

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PRÉFACE PAR EMILE COUÉ

J'AI lu ce livre avec beaucoup d'attention et, comme j'y ai trouvé le plus grand intêret, j'estime qu'il en sera le même pour tous ceux qui l'auront entre les mains.

Le chapitre qui m'a le plus vivement intéressé est celui dans lequel il est question de l'auto-suggestion. J'adresse à son auteur mes plus sincères félicitations, car il a su montrer d'une façon claire et précise tout le bien que peuvent en tirer ceux qui comprennent la façon de manier consciemment ce merveilleux instrument que l'on trouve à la base de toutes nos actions.

E. COUÉ.

PREFACE

THIS book has been specially written for the many students who are desirous of passing examinations without injuring their health through too close study. It is, unfortunately, true that a large army of students sacrifice their leisure, pleasure, and, most important of all, their health in reaching after the prizes that are to be won by knowledge. To all students I commend the words of Bacon : " We command Nature only by obeying her." Further, the body must be educated as well as the mind.

The chapter on *Auto-suggestion* has been included because this subject is a most important one for a student, in fact no student can afford to neglect the far-reaching effects of a thorough understanding of the manifold benefits to be derived from a study of this self-help. The wonderful work that is being done by M. Emile Coué at Nancy should be studied by everyone, and I strongly recommend all to read the book called *Self-Mastery*, by M. Emile Coué,[1] and *The Practice of Auto-suggestion*, by C. Harry Brooks, who has studied the methods of M. Emile Coué on the spot.

To those students who overwork their brain and confine themselves too much this book will, I hope, prove a guide to the right path for achieving success without any ill-effects. It is extremely important that the human body should be well cared for, or the mind will be handicapped and, through

[1] Obtainable from Wm. Richardson, 20 Grosvenor Gardens, London.

"whipping" the brain, there will gradually come the feeling of lassitude, moroseness, and finally nervous breakdown.

I have written in as simple a manner as possible, my object being not to add another subject to be mastered, but to serve as a guide to the best method of studying for examinations.

If any of my readers would like to proceed further with the study of Psychology and Physical and Mental Efficiency, I should be pleased to hear from them.

J. P. S.

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PHYSICAL AND MENTAL EFFICIENCY

CHAPTER I

INTRODUCTION

Mens sana in corpore sano

IT is the mind that does the work for a student, but the mind uses the brain, the nerve system, and the senses of the human body as its tools. If the tools be neglected, or are poor, then it will be so much more difficult for the operations of the mind to be quickly and accurately performed. It will, therefore, be self-evident that it is of the utmost importance that the blood be freely circulated and that plenty of oxygen be supplied to the blood by the lungs. Plenty of physical exercise and nourishing foods are also essential. The better the body is cared for as regards cleanliness, activity, healthiness, and plenty of exercise and sleep, the better will the brain and nervous system be; consequently the mind will be better able to operate on its physical agents and obtain more satisfactory results.

As man is naturally a social creature, it is ruinous to health to isolate oneself each evening grinding away in the same lonely atmosphere after a hard day's work, with no one to speak to and only one of the senses used, viz. sight. This is the lot of many students who have been tempted by alluring advertisements to sacrifice health, the pleasures of society, and the comradeship of fellow-students. Lonely study, much reading and brain-racking over difficult points which a tutor,

orally, can clear away in a few minutes, these are the surest roads to future derangement of the nervous system and digestive organs. When the longed-for position is obtained, where is the enjoyment of it if the health is ruined? It may mean a fuller purse, but it also means a shorter life.

I am not going to say what form of physical exercise is the best, as each one must decide for himself according to his age and the many other conditions, which differ very considerably, but everyone should cultivate breathing exercise at an open window night and morning while standing erect and with mouth closed. It depends on one's own fancy and suitability as to the forms of physical exercise, but the lungs in any case must have pure fresh air to feed the blood which, in turn, supplies all the cells of the body with oxygen and the compounds from the food which we eat to replenish these cells with life, so that the more oxygen that is received and the purer the food the healthier will be the organs of the body, and so much more easily will the mind be enabled to think. Further, it is obvious that fresh-air exercise is better than indoor gymnastics and other forms of artificial physical exercise.

CHAPTER II

AUTO-SUGGESTION

AUTO-SUGGESTION means self-suggestion or the mind causing any part of the body to be affected by suggestion through the nerve system from the brain. By the influence of the mind pains and general afflictions that the human system is heir to can be cured by the wonderful influence and power of the mind over the body, which is proved by the practical experience of M. Emile Coué, of Nancy.

It is a certain fact that the mind does control the body, but, of course, the mind cannot mend broken bones, cure cancer, or make bad teeth into good ones: what is decayed can never be restored, as the chemical and natural processes of nature cannot be altered by any mind that is finite or circumscribed.

The life in the body, the spirit, the soul, the centre of our being, is, as it were, the breath of God, God in us. When we speak of the Devil we mean the natural appetite, cravings, and selfishness which, by habit and continued actions, partly through natural inheritance and environment, and partly through bad influences such as the insinuations of friends, so subtle as to take deep root in absorbent minds, weave a web that seems to envelop the whole of our nature.

Every mind has a bias or inclination for something; with some it is an insatiable desire for wealth, who will stoop to any mean action to achieve their object. Others, by habit, have such a thirst for strong drink that the craving is for drink,

drink, drink—everything must be sacrificed to satisfy this appetite. Whatever the mind dwells upon most becomes its God, and naturally all its energies work in that direction. Imagination strengthened by will-power is the motor that drives our movements and makes us do many things that inhibition cannot restrain.

What is it that causes a man to do the foulest deeds? We can imagine very easily a man who has an exceptionally strong passion for some form of self-indulgence, strengthened by thoughts of many years, which have become part of his nature. In such a case a habit is formed of thinking about a particular subject, and all similar ideas take their cue from this central idea. A new phase of mind is gradually formed, and the subtle influence of another person starts the motor of will-power into action. At this stage there is a mental battle in progress, the latent good ideas or thoughts arise which are in opposition to the many vile and wicked actions that follow from the victory of the devilish thoughts. This is hell indeed—good ideas, struggling for the ascendancy, but the opposite ideas having by long habit and natural inclination, strengthened by imagination and apperceived associated thought, now come into consciousness. After the struggle the will is controlled by the imagination with its multitude of bad thoughts, a whole army of concepts, a multitude of judgments, false propositions—the die is cast, and the diabolical and hellish decisions arrived at have full control. The mind is impervious to all promptings of a higher nature after much false reasoning has been persisted in. Auto-suggestion appears to be impossible, and no warnings or kindly thoughts and suggestions of some saintly person will have any effect. All is now hell absolutely. Beware of evil tendencies, reason correctly, and only encourage higher, nobler, and purer aspirations.

If the friends we meet tell us, one after another, that we are

not looking very well, we begin to feel by these unconscious suggestions that we are really not so well as we might be. Many people have become ill through such suggestions. If, therefore, this is true, then why is it not possible to auto-suggest that we are well, that we can do anything that is physically possible, and that our nervous trouble can be overcome by the power of our own minds ?

Our physical being is ruled by the mind through the agency of nerves and neurones, in just the same manner that every member of the state is influenced by the customs and laws of the country. It is possible for the mind to cause the cheeks to flush with excitement or pale with fear, or cause the body to suddenly become hot or cold. People have died through fear alone, and in such cases it is the mind that has suggested the affair to be worse than it really is. It is quite a common experience for men to fear the worst, and afterwards find that all their fears were groundless.

Nervous students imagine and picture their failure at a coming examination, and, as they suggest it unconsciously, so it happens. There is no logical reason for auto-suggesting failure; in such cases logic is absolutely missing, or if there is any reasoning at all, it is based on false propositions.

Many lack confidence, and distrust themselves. If they would only resolve to have confidence in themselves and realise the tremendous power that is within each one of us, much would be accomplished, in fact anything can be effected of which our reason approves.

Unfortunately, there is a strange faculty within each one of us called inhibition which puts a stop to energy, slows down enthusiasm, and causes unreasonable over-cautiousness. As we get older inhibition becomes stronger, and a bold, fearless, and sportsmanlike nature is almost atrophied by its " brake."

Many psychologists in their books and writings deal with the

subject of the workings of the mind whilst conscious, but do not deal with the mind whilst the body is asleep, under the influence of an anæsthetic, the spell of fear, or similar conditions. That the mind is working during sleep and under similar conditions is shown by the fact that it is the experience of many to go to rest with a difficult problem left unsolved, and yet in the morning the solution is quite clear and all difficulties have vanished. Take the case of talking or reading about something terrible or awful before going to bed, and the consequent troubled rest and dreaming. If we eat a heavy supper before retiring, the result produced is usually nightmare. Whilst the body is unconscious the mind is distinctly energetic; imagination runs riot during day-dreams, and if the dreamer is suddenly interrupted by a visitor he naturally becomes startled and surprised.

After thinking and reading a great deal about psychology, I have come to the conclusion that the mind has two distinct phases: the positive and the negative, or the active and the passive.

From birth everyone by means of the senses has cognition or awareness of objects, and obtains percepts by means of the senses and consciousness. After comparison, assimilation, and sorting out of the percepts, concepts, or classes of ideas, and groups of objects having the same or similar qualities, these concepts are then utilised by the reasoning faculties, and from different ideas or thoughts there evolves the judgment, the master thought, the result of reasoning. If the reasoning is logical and sound, then we have achieved something which will benefit us in the future, if not at once; but if the reasoning is false, then we are likely to make many mistakes which are often fatal to our future welfare.

All these judgments become part of ourselves, and are acted upon afterwards without the necessity of reasoning

again on the same point. During reasoning much labour is required by the mind from the brain, and consciousness has to be sustained either by interest or volition.

Settled judgments, habit, instinct, imagination, retentiveness, wishes, desires, faith, hope, and fear are all phases of our mind that are in operation when our consciousness is not so much in evidence. When we reason, our state of consciousness is very active and alert according to our natural abilities, and at those periods our unconsciousness is held in suspense, so to speak. Passivity and imagination are easier for the mind than active conscious reasoning, and, therefore, imagination always has greater power than the will. Our natural instincts, the habits we have formed, strong desires, are all allies of the imagination.

Our unconsciousness would appear to contain all past mental experience and ideas, and many of the words we speak and actions we perform, rightly or wrongly, and yet withal without thinking, are from the subconscious part of our mind. In fact we might say that our sub-mind is like a warehouse stored with a tremendous stock of valuable and pernicious habits that have been formed either by reasoning or imagination; they are ideas waiting to be recalled by their like or similar ideas—apperceived.

It is the unconscious that controls our whole being, except when we are actually thinking and reasoning, when, of course, the conscious aspect is working.

From the foregoing it will be plain that to act aright, to be free from the temptations of our passions, wrong desires and motives, and the animal part of our nature, it is necessary that whatever we admit into consciousness must be accepted by means of lofty thoughts from high-class reading, healthy exercise of the body, and pure conversation.

It is possible for us to suggest or introduce into our con-

sciousness the very ideas we wish to become permanent. Similarly a friend, a book, or any other means can suggest certain actions to us. It is not logical to say we cannot auto-suggest for our future advantage and permanent benefit, if other minds can and do make suggestions that can be so used.

Many of the diseases that men are subject to arise from the nerves either being overstrung or slack, and as all the nerves of the body are connected up with the brain, it follows that the mind which operates the brain does influence our condition. Let us consider a moment the different kinds of ailments there are, and we shall discover that the majority come from nervous disorders. The only connection the human body has with the mind is by the nervous system. Now, it is a wonderful scientific fact that the whole of the body is controlled by the mind; therefore, everyone has it in his own power to suggest and picture a calm and reposeful state. Medical men would find their labours considerably lightened if their patients would only assist themselves by suggesting and thinking the better condition of the body.

Unfortunately, most people condemn new ideas before even they have reasoned about them; their nature (subconscious) repels anything that is strange to their way of thinking, but these are the very people that require assistance to prevent their strong habits from dominating them and robbing them of much benefit, both directly and indirectly.

The unconscious phase of mind as contrasted with the conscious is shown by the following diagram :—

CONSCIOUS STATE.	WILL-POWER.	UNCONSCIOUS STATE.	
REASONING-OUT COLLECTED CLASSES OF IDEAS.	VOLITION. ENERGY. ACTIONS.	INSTINCT, HABIT, FEELING, IMAGINATION, PRE-JUDGMENTS.	PHYSICAL CONTROL AND REFLEX ACTIONS.
OF A MOMENT.		OF A LIFETIME.	

Picture a person having a strong bias for being miserly, like the well-known Scrooge of Charles Dickens. He knows he is miserable and cannot find the reason, until at last it becomes clear to him either by auto-suggestion or from an outside source. This discovery makes him long for betterment, so he tries hard to break the spell. As he reasons on the matter, the whole experience of a lifetime, the habits of many years, and instinctive feelings rooted in the imagination of wealth and what can be done with it,—all these rise up like a huge army against the new ideas, and, if there is a battle, imagination will conquer, and will-power will co-operate with imagination, through failure to accept these new ideas into the subconscious state.

The habit of the miser thus becomes stronger than ever. If he had dealt with his case differently, he could have succeeded. When the will is tired, effort is weakened by previous work, the batteries of force are run down, and in that condition just before going to evening rest, it is well to think quietly about the wish to cure a habit such as this, and meditate on the pleasures and happiness of a generous spirit. One might read such passages from Shakespeare as

> " The quality of mercy is not strained,
> It droppeth as the gentle rain from heaven," etc.

Saturate the mind before going to sleep with these ideas until the unconscious state receives so many impressions which have at last become associated with pre-judgments that the imagination begins to play with the large group of liberal or generous thoughts, and in course of time by the future aid of the will a new habit will become an integral part of the same person.

If the old particular habit is backed by instinct, then the difficulties are intensified and the process of eradication will take longer.

Now, for those people who have great troubles and worries, I would advise what I have always practised myself. Before retiring to bed, I have sat down and quietly day-dreamed beautiful pictures, suggested future success, built "castles in the air," and by this means I have never lost a restful sleep; and during these worries before meals I have sat down and suggested fine and beautiful prospects, and, consequently, I have never missed a meal through worry—and of worries I have had more than my share.

Some people often judge other men's actions falsely and decide on certain courses to pursue, which have afterwards proved to be wrong. If we would only reason quietly and always allow generous and broad-minded ideas to permeate our whole mind at the finish of the day and every day, how much happier we should be, what errors we would avoid, how much injustice would be prevented. If we are subject to depression and melancholy "future-peeping," or gloom, let us try to displace this state of mind by healthy suggestions. The best time to do this is before going to bed. I now wish to advise all students to give up burning the midnight oil and leave off study not later than 10 or 11 p.m. in order to spend a little time in thinking about passing the examinations, to suggest success, encourage confidence, and meditate on the immense power there is in each one of us. They might read a short autobiography or biography of some man like Demosthenes, who, by perseverance, stones, and time, conquered a disability of speech, apparently almost hopeless, and became one of the world's greatest orators. Students have success in their own hands by practising the self-suggestion of calmness, for calmness is a great help to the memory.

Every duty or task we have to perform, no matter how difficult, can be made easy by persistent thoughts of easy performance; such words as now, at once, easy, can, shall,

are the words to use. If we say on retiring to rest, "Let us be up and doing," we shall find that it will be much easier for us to face our duties and difficulties. We shall find that we had imagined great dark shadows previously which were not there. A student is always benefited by the genial smile and encouragement of a tutor; the very tone or atmosphere surrounding the meeting of fellow-students has a tremendous influence, which, quite apart from other considerations, is beneficial to all. The questions and answers, the discussion with fellow-students, the comparing of notes,—all these create confidence and take a student a long way on the road to success in the examination room. When studying avoid depression as you would the plague, and seek some influence to expel it. What we should do is to fill our minds whilst conscious with ideas of efficiency, success, health, and joy, until they are identified with and accepted by the unconscious, *i.e.* our very self, our own nature, and by this means we may become new beings with great possibilities, and from success we may easily climb to greater heights and renewed success.

We cannot force by an effort of the will new ideas, as our whole being will be up in arms, our imagination will raise up all our preconceived and erroneous ideas. As already stated, we must suggest for ourselves without using will or effort the highest ideals that are, of course, within our natural abilities to attain; but, in any case, the poorest mental being can improve wonderfully by continued suggestion, either auto or from high-class books or refined friends or tutors. Of course, the highest ideals that we can have are those inspired by the Bible, and by such writers as Shakespeare.

In practising auto-suggestion, the student should remember that it is helpful not only for the memory, by reason of using the faculty of speech as well as the senses of sight and

hearing, to speak words of encouragement, to suggest success, an easy mind, steady nerves, and freedom from nervous derangements.

It is not advisable to use force or energy when suggesting these advantageous ideas, as the imagination will be assisted by the will in resisting new ideas that are in contrariety to instinctive fear of failure, of neuralgia, or a thousand and one other shadowy possibilities. Faith in the process of suggesting is necessary, faith in the beneficent results that will follow if the unconscious is allowed to be induced to accept what is suggested to it. Faith is practised by most people, as in the case of waiting for seeds to germinate, or waiting to see the results of advertising, or a student will eventually prove he/she is worth the money expended on him/her. There are many things we do every day which, if pointed out to us, seem absurd, simply because we have done them instinctively, *i.e.* without having had to reason about them. Is not love the most illogical quality that a young man or woman possesses, and yet when reasoned about in later years seems very foolish.

Students should never try to do the impossible, or suggest what is both physically and mentally impossible. It is useless suggesting good-toned nerves and yet burn the midnight oil endeavouring to master study-books. Overstudy ruins the health, and the physical tone required for a clear brain and active mind is weakened. This would not be approved of by reasoning, and nothing should be suggested that is not sanctioned by reason. We cannot possibly have faith in ideas that are impossible to achieve.

There are very few people who cannot benefit much by auto-suggestion, and they are those with a weak mind or deficient intelligence, and those who cannot sustain

attention for many seconds on one idea. Those who can receive special benefit from auto-suggestion are—

Students who are preparing for examinations.

Teachers of all subjects.

Preachers.

Those under medical treatment.

Anyone suffering from neuralgia, headache, rheumatism, neurasthenia, and any other nerve trouble.

Those with excitable, irritable, or bad-tempered dispositions.

Those with evil tendencies.

All those who are under the ban of the law—prisons, jails, and reformatories—should not be judged and condemned as impossible subjects. It is possible by suggestion gradually to influence the most degraded soul and raise it up to a higher plane of living, duty, and thought.

In fact, as stated previously, all that is logically possible can be accomplished, but the combined forces or elements of the subconscious are illogical when they suggest impossibility.

Auto-suggestion is as old as man's life on this planet, and yet by some it is considered as a new science and art. It is really a new discovery, a new revelation of the great possibilities that lie in our path, even more wonderful than flying-machines, horseless carriages, submarines, wireless telegraphy, electricity, and many other wonderful discoveries of the last decade.

We have not yet reached the end of our possibilities : when education is based on proper and scientific lines, when children of about five years of age are taught by the best of teachers instead of pupil teachers, when boys and girls who have reached the seventh standard in our primary schools are drafted to secondary education instead of wasting their time with further attendance at the primary, then shall we get better results, more discoveries will be made, more advancement in science,

better linguists ; and when careers are not thrown away through grouped teaching of fifty and sixty in a class, to save the pockets of income-tax payers, to gain popular favour and large majorities at the elections, then we shall get nearer to true progress.

Subconsciousness.—The first native English poem, written by Cædmon, was created during sleep, and what he remembered after he awoke he recited to the Abbess Hilda at Whitby Monastery about the year 670. Up to that time he could neither sing nor recite. Whilst he was asleep a voice said to him : " Cædmon, sing me a song ! " Cædmon answered : " I cannot sing." The voice replied : " But you must and shall sing." Cædmon then said : " What must I sing, then ? " And the vision replied : " Sing the beginning of created things ! " Immediately Cædmon sang some lines in his sleep about God and the creation of the world. The abbess decided that the secular priest, who looked after the cattle of the abbey, had received a special gift of God, and received him into the monastery, made him a monk, and had history taught to him. Cædmon, although inspired late in life, had time to write numerous poetical works such as a metrical paraphrase of the Old and New Testament, which was read over and over again in manuscript form for several centuries and printed in 1655.

John Bunyan, who wrote *The Pilgrim's Progress* whilst in Bedford Jail for twelve years, is the greatest master of allegory that has ever lived, and, of course, his imagination, which arose from the subconscious part of his mind, is a striking example of what can be done by the subconscious ; but his achievements are not so surprising when we consider that our whole nature, our own self, our Ego is subconscious.

Another example is Sir Walter Raleigh, who wrote the history of the world in the Tower of London during his thirteen years' incarceration.

John Milton wrote *Paradise Regained* after his blindness. This poem, according to Coleridge, is one of the most perfect ever written.

From the foregoing few illustrations, which can be extended considerably, it will be evident that the whole weight and capacity of mind is in the subconscious, from which the imagination draws all life's collected ideas, digested thoughts, and judgments, along with instinct and habit.

The conscious mind only works when we are awake. But the mysterious and complexed sub-mind never sleeps and never rests. Both the conscious and the subconscious have "Will" as their ally. The conscious mind depends on the healthy condition of the brain and body for its power; it is the condition for reasoning, and is affected by knowledge already acquired through experience and education and the five educational senses. Both the sub-mind and the conscious mind use the brain. Charlotte Brontë states that the creative faculty is not under the control of the conscious mind, and this view seems to be cofirmed by the experience of our first English poet, Cædmon, as mentioned on the previous page. I believe that most of the best works in music, art, and literature have not been created consciously by the mind, but have arisen unbidden from a mine of deep wealth, unassisted, unconscious, but yet withal startlingly and pleasurably.

Sub-mind and Religion.—Ideas of God are as numerous as the pebbles on the beach, but the remarkable fact is that all people, whether white, black, yellow, or tan, have some instinctive feeling of a being far superior to themselves. There is in all the natural instinct and desire for worship, so strong that the threatened loss of life itself through clinging to the belief will no more part it from the possessor than you can split the sun's rays. Logic and reasoning are not necessary to prove this fact—it is a fact that no one can dispute.

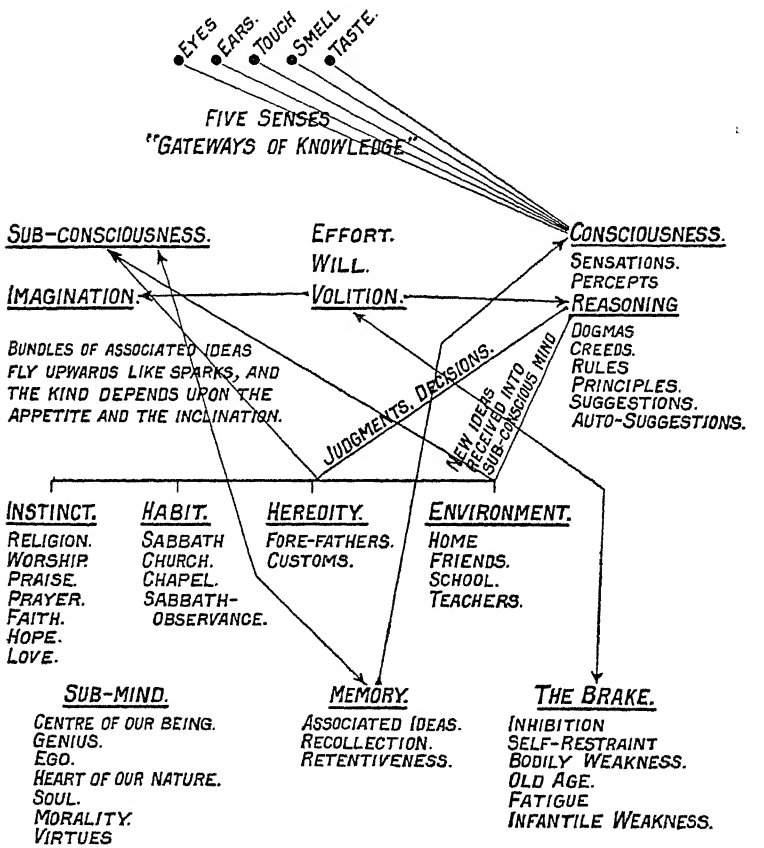
It is, however, possible for the instinctive ideas of God to gradually become dim because of the great accumulation of associated ideas on some worldly concrete topic gaining the ascendancy in imagination, and as the ascendancy is held by one particular kind of ambition, either for good or for evil, a habit is formed by which the same ideas rise to the imagination surface, and by the force of affinity of like natures in environment the imagination is strengthened by these forces. Further, the will "motor" is set in motion to help the ascendant ideas to be translated into action.

From the accompanying drawing on page 17 it will be seen that ideas of God and religion are not the result of education or of training, but are with us always, as a natural part of the life that is in us. The reason why some people are Christians, others Mohammedans, others Confucianists, and so on, is because of the early training they received in this or that form of religion. So it is with Roman Catholics, members of the Church of England, Wesleyans, Congregationalists, etc. In the case of sects holding a particular form of belief such as that based upon the teachings of Jesus Christ, the reason for so many divisions is that heredity and environment cause men to gravitate towards a certain style of worship, and so by habit and reasoning to adopt certain creeds and dogmas. If our minds are uneducated or all our faculties are not properly trained when young, we are liable, if not careful, to become unbalanced, unlogical, and uncharitable, and silly enough to think that our particular method of worship is correct and every other form of creed or dogma is wrong. Some ignorant people even go so far as to say and think that all those who are outside the pale of their own particular Church cannot enter the gates of Heaven.

The best cure for narrow-mindedness is to read plenty of books on travel, biographies, and works on the powers of the

mind, which will very soon cause the narrow brain-paths to widen and the mind to develop until at last it will be discovered that it is a sound maxim to call no thing " unclean."

The reason why so many people are either agnostics or care-



less of the future state is that they have allowed other associated ideas on one particular subject to overwhelm the ideas of God that are natural to all of us. It therefore follows that the strongest associated collection of ideas will become the God, and the result of this will be a continual contest in the natural

instinctive self—the breath of God—against the mad desires which are strengthened by habit and environment; if, eventually, the God ideas get dimmer and dimmer, fainter and fainter, they are *never* stifled sufficiently to be entirely extinguished as long as we live, because they are part of us.

The God ideas account for conscience that we speak of, and the best proof that God and religious belief are not given to us by reasoning but from birth is obtained by asking the question, How is it that a child soon after it can speak and walk can be checked and corrected? It is the conscience within it that knows that it has done wrong, long before it can reason either deductively or inductively.

Sub-mind and Love.—Love is an instinct; it is, therefore, a part of the sub-mind and is born with us. Of all the attributes of the mind it is the one that rouses the imagination to greater heights than any other, because it is part of the religious aspect of our very selves. Beauty is the magnet that attracts love, as is evidenced by the self-devotion of poets, painters, and sculptors in all ages. Their love of the beautiful remained with them for life. When a nation or individual can see the beautiful, then they are nearer Heaven; but when a nation or individual becomes sensuous, then the love of the beautiful becomes warped and the higher qualities in art, literature, and sculpture degenerate, and at last die away. While the moral life of the Greek nation was on the whole healthy and sound, and the spiritual life triumphed over the sensual, then was the time of her greatest achievements in literature and art. All the nations of the past lost their power through the canker of the sensual life. If these men of the past could have resisted the corrupting influence of idleness and luxury and kept themselves sound and pure, we cannot tell to what heights of culture they might have attained. What should have been a help to lead mankind to a nobler life became the instrument of

vice, and the enchantments of poetry and sculpture were made to serve the gratification of debasing impulses.

With the spread of Christianity the thoughts and feelings of mankind have gradually become more elevated, because the associated ideas of God in our sub-mind and the teachings of Jesus Christ along with the native instinct of love naturally raise the imagination to great heights. With this power of associated thoughts regarding the life and works of Jesus, men's thoughts and actions undergo a complete and marvellous change. The power of Christian belief is revivifying, as can be seen in poetry, literature, and sculpture since the Christian era. Many of our great poets and writers have been inspired by a beauty which was undreamed of by the ancient Greeks and Romans, and there has opened up a great province of ideas which was concealed from the greatest of the poets of the past. In lieu of beauty of form and physical excellence they have looked for the beauty of holiness, love, and divine attributes.

We of the present generation are apt to allow the most sublime truths of religion to become familiar and unimpressive. There was a time when the revelation of Christ's life came with more startling effect than the most wonderful discoveries the world has ever seen. The greatest discovery each one of us can make is that we are of God, and Jesus taught us how to live the life that is in us in such a manner as to realise the full meaning of this discovery. The transformation is more clearly seen in the change which has taken place in the conception of love. In the past admiration was confined to beauty of form and excellence of character, but modern poetry is either given up to the glorification of love or what concerns it. The poetry of the past took for its subject the display of strength or other manly virtues, and but rarely would have chosen as its theme some story of slighted

love and despair, or some tale of fortune in which the love of a woman played the more important part.

The whole spirit of modern poetry and prose is absolutely different from that of the ancients, chiefly in that its dominant theme is the exaltation of woman's love, and in that it celebrates spiritual beauty instead of mere beauty of form : it has evolved a conception of the beauty of holiness which was unknown to ancient peoples.

CHAPTER III

PHYSICAL EFFICIENCY

Mens sana in corpore sano

IN order to prevent possible dangers during the period of prolonged study students should know something about hygiene, physiology, and psychology; and as most students are not psychologists, and do not wish to add another subject to their list, I have written this book in the simplest language possible and as free from technical terms as the subject will allow to suit the lay mind.

The Nerve System.—There are two main divisions constituting the nerve system :

1. The central, which includes the brain encased in the skull, and the vertebral column extending from the base of the skull to the end of the back.

2. The nerves, like white threads, which run from the muscles, skin, organs, and glands, and are connected up in pairs to the central division of the nerve system.

The tissues of all animals consist of cells, but the cells of the nerve system are of a special nature. From each nerve cell are small protruding branches which are called neurones, and it is from this word that such terms as neuralgia and other similar words are derived.

The nerves serve two purposes :

1. Sensory nerves convey messages *from* the various parts of the body to the brain, and are called afferent nerves.

2. Motor nerves convey messages from the brain *to* the different parts of the body, and are called efferent nerves.

The nerves or white threads which extend all over the body may be likened to a telephone system, or to a railway system, both of which have main trunk lines and branch lines: the exchange represents the brain, from which messages are sent to and fro.

The important lines or nerves for the student to consider are those to and from the eyes (sense of sight), the ears (sense of hearing), the skin (sense of touch), the nose (sense of smell), and the tongue and palate (sense of taste). These are the afferent nerves, which convey messages to the brain and are very important, because it is by them the mind receives material to work with on the brain. These messages are sensations: if the mind is conscious or aware of the objects that cause the sensations, then percepts are formed in the mind. All the knowledge we possess has been obtained by these "gateways of knowledge," the senses (receiving stations), and transmitted along the nerve system (the wires or lines) to the brain.

Messages or instructions are sent out from the headquarters (the brain) to the muscles to carry out or perform certain and definite actions or movements. The nerves in this case are called the efferent or motor, which implies motion, action, effort, or work. The brain in this case is like the motor that sends the electricity or power to the workers or machines that do the work.

If too much work in the way of conveying messages to and from the brain is done the "batteries" are liable to be exhausted, and brain-fag ensues; in such cases study is not only useless but harmful, and positively dangerous if persisted in.

The light red nerves connected with the organs of the body to all the blood-vessels are quite independent of the mind, and they work continuously, carrying on the intricate process of life's activities in the body, including blood circulation,

breathing, digestion, lymph drainage, and the generation of life-force. These special organic nerves are all connected up to the base of the brain, as all nerves are.

The Brain.—Nerve currents passing through the brain travel by definite paths along cells which join up and so make a contact, but which relax after the messages have passed. Very likely the neurones or cell branches join up the former to complete a circuit. The brain cells of young people are sharp and pointed, but as we get older the cells become blunt and less flexible, which accounts for the fact that it is more difficult to acquire additional knowledge as we get older; but as the cells when older are stronger, knowledge is made better use of by older people, and so older people reason more accurately than the younger generation.

It is interesting to note that the weight of the human brain is about two to four pounds, and is heavier than that of other animals. As a nation progresses in civilisation the brains of the people become larger and heavier, and education has a tendency to increase the weight of the brain in each individual. The animal that is nearest to the human being in construction is the ape, and generally speaking this animal's brain does not weigh one pound. A brain like Shakespeare's or Gladstone's must have weighed approximately four and a half pounds.

Reflex Actions.—These actions are performed without the necessity of thinking, and are invaluable because the brain is thereby saved a great deal of labour. This economy in nature makes one marvel at the wonderful construction of the human being. Many actions which have become reflex have not always been so, such as reading, walking, writing, etc. At first these actions required a great deal of mental effort, but after repetition and concentrated energy they became reflex. All our habits have been acquired in this manner, *i.e.* by forming pathways by constant

repetition. If we imagine a pianist changing places with a mechanic, we should quickly perceive the difference I have tried to explain above. When mental work is repeated, then the repeated thoughts become part of our life.

Brain Work.—The following conditions are necessary for healthy and easy working of the mind :—

(*a*) A plentiful supply of fresh air that is well stored with oxygen; students must not, therefore, work in closely confined rooms. Arrange for inlet and outlet ventilation, but beware of draughts.

(*b*) Plain nourishing food eaten at the proper time and in correct quantities, *i.e.* leave off eating when you could eat just a little more. Drink plenty of cold water between meals.

(*c*) Proper attention to the elimination of all poisonous waste products from the cells by means of the healthy condition of the skin, lungs, bowels, and kidneys.

(*d*) Students should not concentrate on one subject of study for more than an hour at a time. A change of subject is as good almost as a rest.

(*e*) Midnight should not find students busily poring over books, but should find them fast asleep. Never retire later than 11 p.m. A proper length of time should be given for sleep to restore the energy and electricity in the "accumulators."

(*f*) As the mind and body work together, it is necessary that the body should be well cared for as regards clothing, cleanliness, food, and physical exercise.

Best time for Study.—The brain causes a greater strain on the vitality of man than any other organ, so that it is necessary only to use it when it is fresh. The brain is the only organ that we can use at pleasure or when we please, and in the economy of nature this is a wise provision, for if we did not allow our subconscious mind to play on imagination, *via* habit and instinct, we should very soon be worn out. The

best work is done by the brain after it has been rested by refreshing sleep and nourishing food, so that the best time for study is in the early morning or not less than one hour after a meal. As the blood rushes to the part of the body which temporarily does the most work, then it is obvious that study should not commence immediately after a good meal, because the blood is required for a time by the digestive organs. If the brain receives the blood, then indigestion will be a certain result.

The early morning is the time for attacking fresh problems and breaking fresh ground. In the afternoon the mechanical or revision work should be done, and in the evening fresh work may be attempted.

It is important to note that whilst studying a subject only certain brain-paths are being used, so that some portions of the brain are very active whilst others are resting and gaining vigour. A change of subject every hour at least is necessary if the best results are to be achieved at the coming examination or test. Further, attention can be better sustained on a subject during the first hour than afterwards. Of course, an easy subject can be safely studied a little longer at one sitting than an abstract subject like mathematics. In comparing drawing with Euclid, we might devote half an hour at one sitting to Euclid and two hours to drawing. The mental strain required for Euclid or geometry is much more severe than that demanded for drawing.

Cells.—All over the body there are small cells which are supplied by the blood with a wonderful compound—life, and with oxygen by the lungs through the blood. These cells supply the nerves, muscles, glands, etc., with what is required to keep them in tune and in working order. When we do any mental or physical work the compounds in the cells split up into elements, and this work causes heat which keeps the

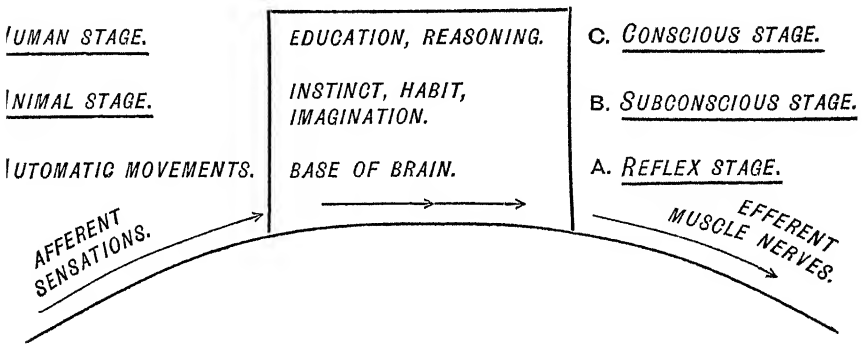
body warm, in exactly the same manner as in a burning fire the compound, coal, is split into various elements by chemical action. If the elements produced are not cleared away, then trouble arises and aches and pains ensue.

Sensation is the result of a nerve action, and the sensation travels to the sensory nerve cells A at the base of the skull (see the following sketch), then probably higher into the brain to B, and if demanding thought to a still higher point C. Those sensations that stop at A at the base of the brain are usually those that are hereditary, and from point A messages are sent to the muscles without the necessity of thought, in which case these actions are called *reflex*. The sensations of animals do not probably reach higher than the subconscious stage. This second stage B has also a somewhat automatic function, and here many instincts and habits develop early. Level B controls the lower level A, and is connected with it by myriads of cells. The highest level C is only acquired as our minds develop, and if all the faculties on this level are not trained early in life, the cells of the neglected faculties become useless and cannot be revived. The highest level C is not dependent on heredity or instinct, but is dependent on education and reasoning. If all the cells in the top level are used, then the result in later life is a sound mind, vigorous, and full of knowledge.

When the blood which feeds the cells of the brain is pure and rich the brain is in a better condition for the mind to work at level C, but if brain-fag or exhaustion has set in, then the level B only is possible. When the nutrition of the brain is not good, then anæmia will hinder the mental functions. Alcohol is the worst enemy that man can have anything to do with, as it causes apathy and robs the brain of all its vitality, which the mind requires. Students, therefore, should avoid alcohol as they would avoid poison.

The chief causes of headache are indigestion, excessive tea-drinking, close confinement, constipation, or studying immediately after enjoying a good meal.

The sketch below will give an idea of the working of the brain.



Memory depends on a pathway formed of cells that have been used once or twice, and if used oftener by impulses the pathway becomes firmer, in the same manner that a pathway used by the public across a field to "cut off a corner" becomes firmer and firmer. By this means good and bad habits are formed, and, as shown in the sketch above, habit is peculiar to the middle stage B. It is advisable for all, as well as students, to make the nerve system their friend by collecting good sensations, so that their mental "capital account" later in life can be drawn upon with pleasure and with happier and higher thoughts. The sooner good and pure habits are formed, the better will we be provided for in old age by a wealth of knowledge that is a priceless treasure more valuable than rubies.

The cells of the brain of an uneducated person are not connected up at all: it is study and education that causes the minute cells to join up and form continuous threads or pathways, so that the more liberal and varied education is, the better

it is for the mind. All the brain cells are present at birth, and, as stated before, if they are not all used, then those not used cease to function and become atrophied.

The Eyes.—Many students have developed the bad habit of bending over their books with the eyes only about 6 inches from the writing. I have discovered by observation and questioning hundreds of boys and girls that they were not trained to keep their eyes away from their work. I think the small print in many text-books has helped to cause this near reading and writing. With all the equipment, discussions, and conferences on the principles and methods of teaching, it ought not to be possible to catch even one student reading a book with the eyes less than 12 inches from it. The close reading just mentioned in nearly every case is not through faulty eyesight, but a bad habit which has been allowed to become strengthened by practice. Many teachers are to blame for close reading, especially in many of the so-called private colleges and schools that are neither registered nor qualified. It is time the public should be able to pick out qualified schools for their children as easily as they buy food for the body.

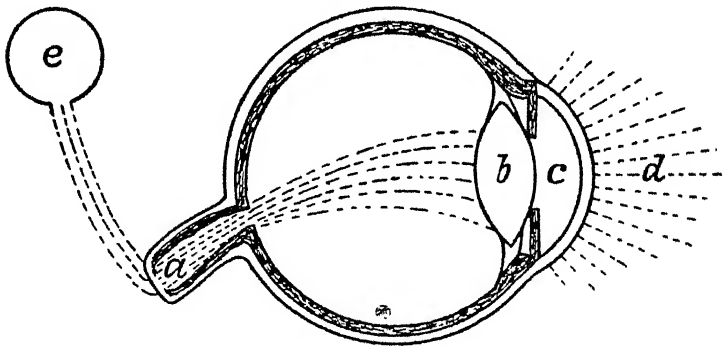
If any of my student readers have this bad habit, I would advise them to break away from it as soon as possible, for if they do not the results will be shown sooner or later by the eyes compelling them to pay a visit to the oculist for glasses. It is the duty of everyone to conserve their eyesight as long as they possibly can, as by so doing many will be spared the necessity of wearing glasses in the prime of life.

Vision.—The process of seeing is by means of rays of light acting on the nerves of the eyeballs; the sensations travel through the optic nerves to that part of the brain where cognition of the cause and awareness of the object are

recorded in the form of percepts. From early childhood hand and eye work conjointly, so that the eyes are assisted considerably, and that which at first required great effort becomes later quite easy and habitual.

In addition to eye blindness, there is a blindness of a portion of the mind through want of development in early life. It is possible for the eye to see many pictures without mentally seeing their value. There is, however, a passive impression recorded.

To see anything it is necessary that an optical image of it should be shown on the nerves of the eyes. The rays of light converge to the picture. The sketch given below will somewhat explain the construction of the eye and how the rays of light are transmitted from the eyeball nerves *via* the optic nerves to the visual centre of the brain.



(*a*) optic nerve, (*b*) lens, (*c*) eyeball, (*d*) rays of light, (*e*) visual centre in brain.

The eye has to adapt itself, to focus, and to centre.

Eye Strain causing Nerve Strain.—By the overuse of any muscle or muscles of the eyes, headaches and nervous troubles ensue which detract from the power of concentration in study. Good ventilation and the correct distance of the eyes from the

book are very important hygienic points that should receive careful attention from every student.

The Blood.—The liquid called blood is very important for the consideration of a student because by it is carried protein, food, and oxygen to the cells and tissues. The cells obtain the necessary material for building up their substance and the oxygen needed for their life from the blood, and the cells transmit to the blood the waste elements and carbonic acid gas. The blood, therefore, passes through the organs that give out the food, the lungs that furnish the oxygen, and the glands and lymph arrangements for rejecting the waste.

The blood travels from the heart, where it is pumped through valves into the veins, carrying with it corpuscles, and then to the minute tubes all over the body called capillaries. The oxygen and nourishment which the tissues require is continuously passing from the blood through the walls of the capillaries, and similarly the waste matters which the tissues form pass through the walls into the blood.

The Muscles.—The muscles are larger in the middle than at the ends. The movement of a muscle is caused by a message being sent along the efferent nerves which causes the muscles to draw their ends nearer together and to become thicker in their centre, thus enabling the bones to be moved by contraction and expansion. The movements of the body are performed in like manner to a lever, which is a bar that can be moved about a fixed point in its length; the fixed point is called the fulcrum.

The muscles have an important influence on the circulation of the blood, the breathing and digestion, besides being the chief producers of heat in the body. Some muscles are controlled by the will and others by reflex action, as they are connected by the nerve system to the lower part of the brain.

Breathing.—Respiration is performed by the two bags called lungs which are situated in the thorax (the chest). Inspiration is performed by the contraction of the diaphragm and muscles, so that the chest is increased in size. Expiration takes place when the muscles relax.

An adult breathes out about 500 cubic inches of air in one minute, or about 21 cubic inches of carbon dioxide in one minute, which is of a poisonous nature. A room 10 feet high and about 5 yards square should be ventilated every hour. According to this many of the happy homes of England are deficient in oxygen. The window of a room which is occupied should be kept open a little at both the top and the bottom, and in the case of bedrooms which are occupied the windows should be left partly open all night. On account of the cold air in winter, and sometimes in autumn and spring, some people keep their bedroom doors open for ventilation. A better plan would be to have the bedroom window kept open just a little and the door left full open.

Food.—What we eat and drink is for the purpose of maintaining life and the various functions of the body, and nature has been so admirably designed that we know when and what to eat and how much we require, so that if we misuse the ruling of nature and pander to our appetites then, of course, something must go wrong.

The substances we eat can be divided into groups as follows :—

Proteins.—In flour, peas, potatoes, beans, and cereals, eggs, meat, milk, and cheese.

Carbohydrates.—Starch and sugar as in flour, cereals, potatoes, rice, fruits, bread, sugar, fats, milk, cheese, butter, oil, and meat.

Vegetables.

Water.

Salts.—Phosphates, chlorides, iron, potassium, sodium, calcium, magnesium, and acids.

Proteins supply carbon, hydrogen, nitrogen, oxygen.

Fats and carbohydrates supply carbon, hydrogen, and oxygen.

Some foods produce tissue and others produce energy and heat, so that the best dietary is an all-round one. Fats produce heat, so that they are most useful and valuable in cold weather.

Sugar should only be taken along with other food at meal times. Sugar is good because it strengthens the body and helps it to resist fatigue, it also creates heat for digestion, prevents colds, and resists disease germs.

Animal Food.—Meat should not be fried. Fish should always be fresh and not fried. Raw oysters are the only shell fish that should be eaten.

Bread should be wheaten and not eaten under two days old. Plenty of good fresh butter and brown bread will help to prevent chills.

Vegetables are very important and should be eaten liberally, but should always be fresh; the best to eat are potatoes, asparagus, onions, lettuce, peas, beans, turnips, water-cress, celery, carrots, tomatoes, parsnips, beetroot, cabbage, cauliflower, and broccoli.

Condiments and spices are not necessary except salt itself, which helps digestion and improves the condition of the blood.

Puddings of all kinds are good to eat, the best being rice, apple, rhubarb, tapicoco, suet, batter, etc.

Milk contains almost all the requirements of tissue-forming, energy, and heat, and is the most valuable and useful food we have except perhaps bread two days old.

Of course, much depends on the daily occupation of the reader as to what foods are the most suitable, but in the foregoing I have suggested what would be suitable for a student

who is somewhat confined. The foods most easily digested are the best for students, and such as spirits, beer, buttered toast, pork, sauces, pickles, seeds, husks, pastry, new bread, dried fruits, and too much meat should be avoided. A cup of milk between eleven and twelve in the morning is a splendid help to nutrition : milk contains the qualities which are essential for health and development.

Note that expensive foods such as salmon, sole, turbot, choice cuts of meat, cream, and eggs are not really necessary. All meat extracts, meat juices, and essences, broths and beef tea are wasteful for persons in good health : there are many costly nourishments which are no better than the cheaper foods, for example—

Cod-liver oil is no more nutritious than fat bacon or butter.

Malt and cod-liver oil are no more nutritious than toffee.

In petroleum emulsion there is no nourishment at all.

Everyone should drink plenty of water, which helps all the organs of the body and assists digestion.

Clothing.—The temperature of a healthy person is about 98° Fahr., and scarcely varies. This animal heat is obtained by oxidation of the material received from the blood, and has to be maintained, so that when heat is lost more heat is required to be produced. Clothing does not supply heat to the body, but prevents or diminishes the loss of heat from the body.

Clothing should be a bad conductor of heat, it should be porous on account of perspiration, and it should be light.

Wool is the worst conductor of heat and is the very best absorber of moisture ; flannel comes next, then silk, then cotton, which does not absorb moisture very well, and the worst of all is linen. Too little clothing is more dangerous than too much. Clothing should be loose enough to allow the

film of air in contact with the skin to move freely over the surface. Wool is the best material to wear next to the skin during both winter and summer, the only difference being that in summer the woollen undergarments should be of a lighter and thinner material.

Too much clothing increases the tendency to catch cold by promoting perspiration, which opens the pores. To wear extra scarfs and the like round the chest or neck is a good way to invite colds. The body should be evenly clothed all over, and no part protected more than another.

Too little clothing, especially in damp weather, is positively dangerous. Owing to the damp and variable nature of the English climate, great care should be taken to be properly underclothed with wool, and the feet should be well shod and kept always warm and dry.

The latest craze of ladies to have bare arms, white cotton stockings, and bare chests cannot be too strongly condemned, except on the hottest days of summer. This practice is the forerunner of future trouble such as neuralgia, rheumatism, etc.

I would strongly advise students to avoid damp clothes and boots as they would the plague. Damp clothes and a damp atmosphere are the worst enemies as regards health. Damp clothes cause such a great loss of heat from the body on account of moisture being a good conductor of heat that they are a prolific source of chills.

Open Air.—Owing to the marvellous progress made in fighting consumption, much useful information has been gleaned which is useful to even the healthiest person. Open air, which is one of the few of God's gifts for which no charge can be made by huge combines or profiteers, is indeed a valuable asset to everybody. We have only to consult the reports of the registrar-general to find that the death-rate of farmers

compared with that of printers and the like workers is in the ratio of fifty to a hundred.

If possible, students should study in the open air (out of doors) and not be afraid of catching cold. Catching colds is due to microbes which take advantage of our condition when some part of us is out of tune. Colds are not caught on long ocean voyages, but in overcrowded, low-ceilinged cottages colds are quite common. The "Simple Life" has been the sensible cry of many doctors and educationists for some time, and as our social system still allows a few to possess the land and to take the earnings of the workers by way of rent and royalties, so long as this state of affairs lasts there will always be crowding of people on small parcels of land. The congested housing space in the towns means the loss of health to thousands of human beings every year.

I strongly advocate and believe in the practice adopted at Charlottenburg of closing the banks for two hours at midday, which produces such splendid results that I cannot understand why employers in this country are so sound asleep as not to realise the tremendous advantages that they would gain if they adopted a long lunch-time break in the middle of the day by obtaining better work from their employees, especially in summer.

I cannot resist mentioning how far we are behind other nations as regards food, clothing, education, and the general welfare of the people. We have only to compare a town like Manchester or Birmingham with Chicago, which has set the whole world a splendid example in the way it has provided so many play-grounds for children and meeting-places for circles and clubs. By means of these, the young and old of different nationalities and varied opinions unite to keep up their various associations almost without help from expensive officialdom. These rooms, gymnasia, baths, halls, and play-

grounds are maintained by the city and given to the inhabitants free of any charge.

Fatigue.—Excluding those who are born tired or lazy, the feeling of fatigue is nature's way of warning us that we have reached the end of our resources as regards the compounds of the nerve cells which supply the vigour and freshness of brain and body. If it were not for this danger-signal many of us would collapse suddenly. To have healthy nerve-functioning it is necessary to have a good blood circulation and a free lymph-drainage movement to take away the poisonous elements generated by the process of work and energy of mind, body, and organs.

A sedentary life will cause fatigue just as quickly as mental exercise. A student cannot concentrate attention, which is the highest function of the nerve system, when the feeling of fatigue sets in, and it is, therefore, advisable to give up, rest for a while, or change occupations.

Fatigue usually arises through excessive mental work. Mental fatigue, of course, is not possible, because the mind is not material and is not affected by the state of the body in the same way that the brain is, so that the mind is beyond the reach of fatigue. It is the brain which is subject to the physical laws of nature, that becomes fatigued, and it is this condition of the brain that is called "brain-fag." Fatigue of any sort is the result of excessive physical activity. This activity is obtained from the chemical processes in the cells. The batteries of an electric bell-set will become run down if the electricity is continuously used: the bell will ring well each time if the batteries have time to gather fresh energy. This will explain the working of the cells. Similarly, in the burning of a coal fire, where the compound coal is by oxidation split up into elements, the dust or waste must be removed if the fire is to burn brightly: a fire always burns brighter in frosty

weather, which suggests that there is more oxygen in the air when the weather is frosty than when it is muggy or damp. Even machinery is better for a rest, and I think this principle may be widely applied in many directions.

Stiffness after physical exercise is caused by the products of oxidation in the cells crystallising in the tissues of the muscles. When the blood has cleared the tissues and carried away the bad material, then the body is ready for further work. Sleep and rest are the best means of restoring vitality and replenishing energy.

When brain work is done, nerve-functioning is going on and sensations are travelling to and fro, and accumulated energy is being used up and the waste elements are being liberated. If this process is continued too long, then brain fatigue follows and mental debility will ensue. The first stage of brain fatigue is a feeling of being bored or sick of the subject, and in this case interest and attention are absent, so that the more we lose interest the more will-power we require to continue, and the exercise of will-power more than any other form of mental work robs the body of its accumulated energy. The order of mental fatigue is boredom, weariness, distastefulness, mental fatigue, exhaustion, collapse, and finally ruined health beyond repair.

Mental energy varies during the twenty-four hours : it is at its best from 9 to 10 in the morning, and grows less by 3 p.m. It gradually gets stronger towards the evening ; but 2 to 3 a.m. is the point at which our natural forces are at the very lowest ebb.

After a good meal the blood circulation is chiefly concerned with the digestive organs. The part of the body that works hardest requires the most blood for nourishment, and when the muscles or digestive organs are active the brain is resting. When the brain is working hard after a good meal the

blood-flow is drawn to the brain, so that the digestive organs are being impoverished and indigestion is caused. It is, therefore, not advisable to study hard directly after a meal, but some time should elapse, say one hour, before commencing study; the result will be easier working of the mind with the brain.

Students who work regularly and consistently cause the brain to become accustomed to the same amount of work each day, and by repetition a habit is formed for the brain to do the maximum of work with the minimum of fatigue.

Early morning is the best time to devote to acquiring fresh knowledge and " breaking fresh ground," and later in the day previously acquired knowledge may be dealt with. The best time for physical exercise is in the afternoon. Acquiring fresh knowledge requires more nerve energy than revising previously acquired knowledge, so that the hardest work should be done when the brain has been refreshed by sleep and rest. " Success in acquirement should be the work of rare, choice, and happy moments: times when the cerebral vigour is both abundant and well directed." (Bain.)

Owing to the brain being sectionised,—one part working while the remainder is resting,—a great economy is effected which enables a student to work hard for, say, one hour on a given subject, and by switching off on to another form of study the possibility of fatigue is lessened.

Rest.—Nature warns us when a rest or change is required, and it is when will-effort is required that the alarm is soon given, because volition is too exhausting and soon depletes the cells. It will be readily seen that monotonous or dull work is very tiring, because interest cannot be sustained, and when interest disappears then volitional effort has to take its place.

There are two ways of resting the body: by changing the

occupation altogether, or partially, by changing the subject. Both of these two kinds of rest are necessary to keep the body well. The best way to rest is by sleeping, but it must be noted that sleep will not cure troubles caused by excessive mental work: it takes time to repair the damage done by an overworked brain. Nature has provided sleep as the time for producing fresh vigour, so that the body should not be overburdened with work through eating supper just before retiring to rest. At least two hours should intervene between eating and sleeping. Night is the proper time to sleep, and if this time is sacrificed to study, trouble will surely follow. Further, students should not sleep without a break between study-work and sleep. Punctuality in retiring to rest is very important, as a valuable habit is thus formed which will prove a splendid asset in later life.

Deep sleepers do not require the same length of rest as light sleepers, but nature arranges this for us. Generally speaking, eight hours' rest every night is necessary for everyone over the age of twenty-one. Many people are troubled with sleeplessness, and to them I would suggest the following :—

Increase the amount of open-air exercise.

Stop all mental work at least one hour before bedtime.

Go to bed with warm feet.

Sleep with the bedroom window open at the top and the bottom.

Be punctual in retiring for sleep.

Allow about two hours to elapse after supper before retiring to rest.

Sleep between woollen blankets.

See to the over bed-clothing being light.

Change entirely from day clothes to a woollen night-dress.

Physical Exercise.—The muscles, of which there are over 500, form the flesh of the body. The muscles cover the bones and

control their movements, the nerves control the muscles, the brain controls the nerves, and the mind works the brain. The muscles are covered by fat and skin. They protect the organs, support the body, and control our movements.

If any part of the body is not used continuously it gradually becomes atrophied, and if allowed to die can never be revived; further, if all the muscles are not used as much as they ought to be they will become weak.

Exercise is absolutely necessary, especially for those who have confined occupations. By using the muscles they become stronger and firmer, but, like the brain, they are liable to become exhausted by fatigue, and excessive physical exertion will be permanently injurious; but the most serious point in this connection is the straining of the muscles of the heart, causing valvular disease. I must warn my student readers against the dangers of over-exertion. Many fine young fellows have had their health ruined whilst at boarding-schools through too much physical exertion. I know of one case of a youth who collapsed, and was so bad that he could not be moved from his bed to his home through nothing else but overstraining whilst playing football.

Exercise in the open air is much better than in a closed building on account of the great amount of oxygen required whilst exercising. The ratio of air inhaled whilst lying down and walking at about 4 miles per hour is about as 1 is to 5. The more energy we use the more blood we require to carry nourishment and oxygen to the cells of the muscles.

Physical Rules.—Neither mental nor physical exercise should be taken directly after a meal.

Woollen garments should be worn next to the skin both in winter and summer.

Both mental and physical exercise should cease when the feeling of fatigue is experienced.

Study and bodily exercise should be well balanced and one should help the other.

If possible all physical exercise should be done in the open air, because of there being more oxygen in the fresh air than in the rooms of the house.

After games extra clothing should be put on, because free perspiration causes a liability to chills.

All clothing should be loose to allow a film of air to get to the skin.

Games and exercises should be suited to the age of the student.

The best exercise is the one that has the most varied movements.

Both mental and physical exercise should be regular and systematic.

Running is the best physical exercise.

If outdoor exercise is not possible, then it is advantageous to join a gymnasium, but care should be taken to wear a special dress, and after the gymnastics the body should be well rubbed with a rough towel.

Breathing exercises should be done at an open window in a standing position.

Walking is a splendid exercise if the ground is undulating.

There are many forms of outdoor and indoor exercise, so that students have plenty of choice, but physical exercise must not be neglected if the brain is to work efficiently.

After supper walk a mile.

Food should be wholesome and pure. Do not use artificial foods such as margarine.

On awakening in the morning rise at once.

A hot bath should be taken every week.

Sponge down every morning.

Sleep with the bedroom window open.

After rising swing the arms and move the legs freely for a few minutes.

Do not sleep in a curled-up position.

The teeth should be carefully attended to and kept absolutely clean.

CHAPTER IV

MENTAL EFFICIENCY

MENTAL efficiency, as explained in Physical Efficiency, is dependent on the condition of the brain, which is dependent on the nerve system being in tune.

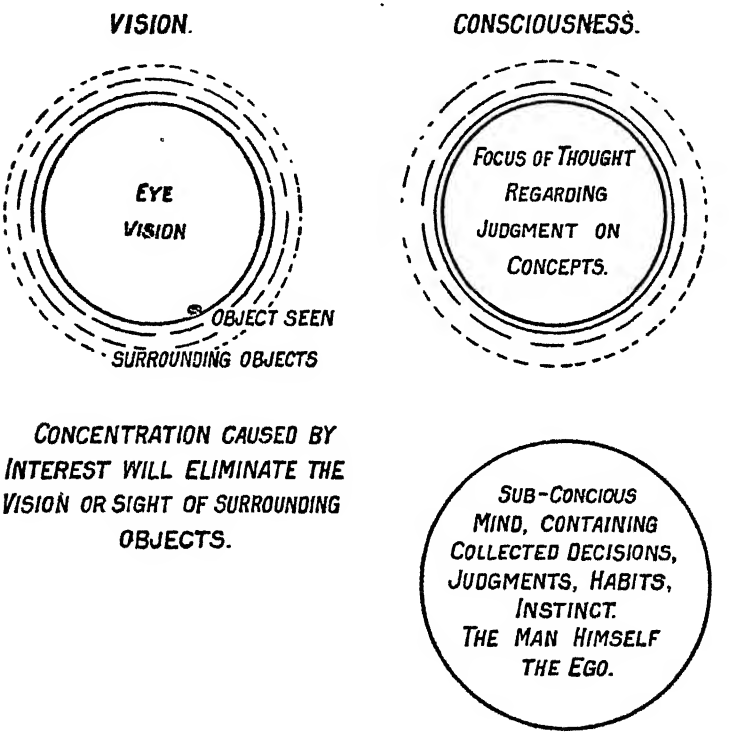
Mental efficiency refers to the mind having good tools to work with, chiefly the brain. Mind is invisible, occupies no space, and is not "caged in"; it is the whole of the mental processes of a lifetime, it includes sentiments, emotions, memory, habits, volitions, intellect, etc.

We might tabulate the difference between the brain and mind thus:

Brain.	*Mind.*
Takes up room.	Has consciousness.
Has weight.	Has subconsciousness.
Has extension.	Has reflexion.
Not conscious.	Invisible.
Subject to fatigue and pain.	No fatigue and no pain.
Encased.	As free as the air.
Material.	Process.
Etc.	Etc.

Consciousness.—This is a phase of the mind that requires awareness of the object that has caused a sensation, also attention to the object, and the sense of feeling which may be pleasant or unpleasant. The conscious state of the mind is similar to the perceptive capacity of the eye, inasmuch as both

are dependent on focus; we see so much in the circle of vision, and fringing this circle we can partly see the surrounding objects, but if we move our heads we see another object. The consciousness of the mind can only consider one object or set of objects at a time. From the illustration given below, it



will be easy to understand that consciousness has a focus, and around this focus there is the fringe or margin of consciousness, corresponding to the focus and fringe of vision.

In order to concentrate our attention on a particular object either interest or volition is necessary, so that if the object of consciousness is pleasurable, interest will sustain our attention to it; but if the object arouses a feeling of unpleasantness through

fatigue or non-interest, then either volition or effort will be necessary to fix the attention. Both the effort of will and the pain occasioned by it are very tiring and make a call on our reserves of energy which can only be supplied by a first-class condition of the blood and body.

Heredity.—The progress of a nation is in the same ratio as the progress of a single mind of that nation, and the falling back of the units of the race into immorality or any other depraved condition will gradually bring a highly civilised and refined people to the dust. We have only to think of the Greeks and their great learning, and recall how great philosophers, logicians, and thinkers increased to such an extent that their powers became a part of the heredity of the nation. The character of a single Roman soldier who stood at his post till death released him exemplified the character of the Roman nation as a whole. They made great soldiers and lawyers, and were thorough.

Heredity is the tendency of the mind to think in the same way as its predecessors did, and causes men to utter the ignorant parrot remark of "What was good enough for my father is good enough for me."

It is chiefly in relation to political matters that this peculiar type of mind works by heredity. The brain-paths formed by constant repetition seem to be repeated in the offspring, and in a similar manner the tendency to certain kinds of actions and diseases are repeated in the next generation or two. Heredity is the strongest part of our nature, and is man-made—the confirmed habits of a previous generation; but instinct is God-given, and for a definite and wise purpose. It is possible for a nation in a state of savagery, whose instincts are but the state of perception, imagination, and memory, by civilisation and education to gradually and slowly evolve into a people who can reason on the most abstruse problems.

Environment.—People living in hot countries are not so strong and active as those who live in temperate regions. We can see a difference in the people who live in mountainous regions compared with those who live on the flat parts of the earth. The people we associate with by their suggestions and modes of thought help to mould our character, and as one affects another the tone of the nation is formed. Home is the place that makes us what we are to a great extent; the influence of the home is very important, and if the influence is bad, then education and the counter-influence of tutors and teachers is the only means of counteracting somewhat the bad effects of the miserable places called homes.

We should always try to mix with people who are better than ourselves, so that we may learn from them and receive a better set of ideas than our own. Students should mix with fellow-students and qualified tutors whose influence will help them to the realisation of the best that they are capable of, which will be beneficial to the nation as a whole as well as to the individual. Ideals should be the purest, the noblest, and the very best, so that our lives may be happy and easy when we live by habit chiefly in old age.

CHAPTER V

INSTINCT

THE subject of instinct is a most interesting one as it operates throughout the animal world, including man. We have only to think of the bees that make cells in which to store the honey that they collect from the various flowers. The honey is deposited by them in the cells for future use when there are no flowers. The cuckoo, like many other birds, migrates to warmer climes in the autumn, and on its return lays its eggs in the nests that other birds have made after pushing out of the nests the eggs already laid there. There are many similar instances that can be cited as examples of the manner in which instinct works.

There are many distinct mental actions that are embraced under the term instinct. The actions noted above of the bees and the cuckoos are beyond human experience, but those actions that are performed by many people in a similar manner without their knowing for what purpose they are done are usually said to be instinctive. Natural and instinctive actions are performed unconsciously, *i.e.* without the necessity of reasoning first, and are inborn with us. Instinct is the natural habit of doing certain things; but this quality must not be confused with habit itself, as habit is the same quality but is not inborn, resulting from the repetition of certain actions. Such actions are performed in a reflex manner, *i.e.* performed in a manner which is mechanical without the necessity for reasoning.

From the above explanation it will be seen that instinct and habit are similar qualities; but the former is with us at birth, and the latter cultivated by repetition. Many habitual actions are performed in direct opposition to our conscious will, yet they may be modified by reason and the will. Habits easily become associated with other habits. When they are once acquired they persist during the rest of our lives.

There are many points of similarity between instinct and habit. For instance, if a reciter be interrupted, he has usually to go back to recover his train of thought. Instincts have not been acquired in one generation, but have been transmitted by inheritance from one generation to another, and these instincts have very gradually adapted themselves to the conditions of time and circumstances. Instincts are as important to us as is the peculiar structure of the body. If every action had to be thought about first, I fear our bodies would be worn out long before we reached our threescore years and ten.

Instinct is altogether automatic, *i.e.* for the good of the possessor only: no animal performs an instinctive action for the good of another, but, on the other hand, one tries to take advantage of the instinct of others in the same manner that one animal takes advantage of the weaker bodily structure of another. In the case of human beings this is altered, because the power to reason tempers and somewhat alters the instincts, so that when men do not reason, then the animal instincts prevail and much suffering is caused to others.

Fear is a natural and instinctive quality of all animals and birds alike; but, through experience tempered by reason, man overcomes this state and can school himself to face almost any danger or difficulty. By such a process of mental discipline a Roman soldier was prepared to die at the post of duty as if still on guard. Some people think that children are

fearless ; it is not want of fear on their part but ignorance of danger that causes them to do certain actions and take risks from which others would shrink.

Domestic instincts have been acquired by mankind gradually, and natural instincts have been lost partly by habit and partly by desires and wishes which have caused us to select and regulate our movements with the aid of the will, and thus fresh habits have been formed which, by inheritance, have become instincts.

CHAPTER VI

HABIT

WHEN speaking of the cells of the body, I mentioned that they were minute, but it should now be noticed that between the cells there is a space or division of about one-thousandth of an inch, and when messages are sent to and from the brain through the nerve system these cells join up and make a continuous path, so that by constantly using the same paths there is a tendency to do the same thing again and again, or to persist in certain ideas, and this tendency towards repetition is called habit; many of the things that at first seem difficult become easy by constant practice. We do many things without having to think, just as an accomplished pianist plays without much effort. When we get older the paths become fixed because the cells are not so elastic, which accounts for older people having firmly set opinions.

Good Thoughts.—Students who are ambitious in life should be careful not only as to their methods of study, but as to their habits of thought. A thought is the antecedent of an action, so that if thoughts are poor or bad, then trouble is sure to follow later. Let us all have noble thoughts, so that when we get old our ways and actions will be pleasant and easy.

Value of Good Habits.—We hardly realise the value of habit and what a vast amount of work it saves the brain. If it were not for habit it would be as difficult for the adult to walk as it is for the infant when learning to do so. By means of habit

it becomes possible for us to produce a mechanical method of action, but when we are faced with new circumstances we are liable to be easily thrown off our balance.

The customs of a people are but the collective habits of a nation, and these customs in civilised communities have become part of the law of the land. As an instance may be cited the *Lex Mercatoria* or Merchant Law, whereby certain customs of traders have, by decisions in the courts, become fixed law or case law, and a branch of study has arisen called Mercantile or Commercial Law. We can argue that repetition of the active instincts of a people have become habitual, and in this manner the main body of their customs has been formed. We have many instances of this in history, as in the case of the Laws of the Twelve Tables framed about 500 B.C., which code of laws was the outcome of the customs or habits of the Roman people.

Hindu law was based on the customs of many years previous to its formulation. The Aryans, from whom our language is supposed to be derived, when they penetrated westward into the Himalayas and thence to the West of Europe found customs among the people which they adopted. The repeated acts of the Anglo-Saxons in their village communities were the origin of the customs that they introduced into this country. They brought with them the idea of the courts of freemen, and they have influenced not only our language but are also largely responsible for the stolid nature of the English race.

Our own mercantile code is founded on the usages of merchants which have been established by repetition. The code of Lübeck, about 1260 A.D., embodied the customs of the sailors of the North Sea and the Baltic. When customs become strong, then the State has generally to recognise them and regularise them for the benefit of the whole community.

The English people have always been good colonists, because they have usually (not always) respected the habits or customs of the peoples of the countries they have conquered. To rule well we must recognise customs which are held sacred or essential to a people's welfare.

Senses.—Ideas obtained through the medium of the senses are the most permanent and clear, in fact all knowledge we possess has been obtained through the senses. The chief sense is sight, and if we see an object we get a clearer impression of it than we can obtain by reading a description of it. It is a useful aid to memory to make graphs, drawings, sketches of those things we wish to observe.

A better impression may be obtained if the sense of hearir is used along with sight, as in listening to a lecture, or discus sions with a tutor. No one will dispute how deeply we are impressed by a discussion in which we have taken part; we repeat to ourselves arguments and statements over and over again. The interest is so strong that we cannot forget it; it is engraved on our consciousness as if cut in marble. Ideas, therefore, which are derived from two or more senses are more strongly impressed on us than those derived from one sense only.

Attention to study is secured by the interest it awakens, and this is an indispensable condition for the acquirement of knowledge. Involuntary attention (without effort or will-power) is desired by all students, and a good plan to ensure it is to vary the methods of study, the arrangement of notes, or to listen to lectures on the subject under consideration when opportunities arise.

If attention flags, get to know the reason why. It may be that the eyes are tired through overwork; if so, bathe them in lukewarm water containing some boracic powder.

If inattention arises through feeling bored, change the subject

atonce, if through distracting noises, then put cotton-wool into both ears.

If the brain is vigorous and healthy, attention becomes a habit by practice, and consequently less energy of will is required to concentrate the mind on a given topic. When impressions are clear, only memory, which is passive and requires no effort, is required to reproduce images, ideas, thoughts; but if the original impression is weak, then recollection, which is active and requires effort, becomes necessary.

The power to concentrate produces a good memory; in fact, if consciousness is vivid, then memory is long and lasting, but if the consciousness is weak, then the memory is very short and must be assisted by recollection.

If there is no consciousness, then there can be no memory.

Association of Ideas.—A good memory implies the power to recall quickly, as well as tenacity, and this depends a great deal on the association of ideas; in fact every faculty, including memory, is the result of our associations. The more readily we connect an idea with other ideas the more easily can we remember facts. Memory is the immediate evidence that our mind is naturally an associating storehouse of ideas; it is the result of the affinity of ideas for one another.

Some people have a good memory for what they have seen (visual memory), but may be slow in retaining sound. We speak of a memory for faces, music, scenery, places, and so on, but at all times a " cue " is needed to recall associated ideas—memory.

A useful memory is cultivated by the coupling of ideas in pairs, and by associating and connecting ideas of similar nature. The following particulars should be noted in grouping ideas:

1. Position or nearness to each other.

2. Contrast—opposites.
3. Similarity—can be classed into one group.
4. Cause and effect.

Lightning always suggests thunder, although one idea originates in sight and the other in sound (hearing). Though dissimilar, they are generally near to each other in space and time. The Battle of Senlac will suggest William the Conqueror, who will in turn suggest the gradual decay of the local law courts and many other dissimilar ideas in the student's mind. Reciting from memory is accomplished by the association of one idea following another. One word in a sentence suggests the next word by repetition, which forms habit, and so on, and thus we remember sentences. But what will happen if we reverse the sentence? The chain of ideas would be broken. Rhyme is very much easier to memorise than prose, because of the jingling of like endings. In the four lines used to memorise the number of days in a month we have the jingling of like endings, and one word is remembered by following another one:

> Thirty days hath September,
> April, June, and November.
> February hath twenty-eight days clear,
> And twenty-nine in each leap year.

When learning a foreign language it is wise not to try to remember single words, but sentences, and invert the sentences and play on the verb with different nouns, without altering the sense of the sentence, *e.g.*, il va; où va-t-il? il va au théâtre; quand va-t-il au théâtre? il va au théâtre aujourd-hui—and so on.

If I picture my last visit to London many dissimilar ideas or objects will come to the mind, but they were impressed on the mind near to each other in both space and time.

Contrasted ideas will recall each other, and, next to association of similar ideas, association by contrast or opposite ideas is the best help to the memory. Notice how black will recall white; sharp—blunt; speedy—slow; large—small, etc. These contrasted ideas really refer to similar objects, but are the extremes in consciousness. Analysis and synthesis, induction and deduction, sight and blindness; each of these couplets contains two thoughts which can blend although they are opposites; they are like the North and South Poles, so wide apart and yet how similar.

The easiest of all methods for remembering is the association of ideas that are similar. One person is so much like another that one reminds us of the other. The marriage of Princess Mary reminds those who are married of their own marriage. The brighter the resemblance and the closer the affinity of ideas for each other, the more easily they will blend in association. It is necessary for the mind to be trained to connect similar ideas. Similar sounds, events, appearances, words, can be collected. One event will suggest another because it is similar; foreign words are more easily learned when resembling English words.

If we associate the cause of an action with the effect it produces, it will assist the process of memory. Rain falls and so fills the wells and springs, waters the garden and land generally, and still further results in the growing of crops, fruits, grass for the cattle, etc. Consider for a minute the effect of the Renaissance in the Middle Ages, the conquest of England by William the Conqueror the Norman, and what changes were wrought. In every department of life we may notice that every result has had a cause.

Why are sheep found on higher levels? Because they require dry places and, like poultry, cannot thrive in damp valleys. But cattle are found in the valleys, as they require plenty of

moisture on account of their milk-producing powers. From such examples it will be seen that geography is more easily learnt by considering the physical aspect. For instance, people living near the sea will fish.

History should be learnt by studying how certain effects may be traced to their particular causes. Every idea in the mind is connected or associated with numerous other ideas, which can be analysed and resolved into factors. Any idea may suggest and recall some other idea, but what we want is the priceless treasure of being able to immediately recall facts which have been stored in our minds. Owing to deeper and clearer impressions being formed some ideas seem to gain an ascendancy in consciousness. If a gardener is in conversation his mind and conversation will be on the weather, soil, and plants. In a factory, an engineer would be interested in the machinery, the works manager in the quality and speed of the work done, and the owner would be interested in the last balance-sheet.

Association of ideas is a natural law of human nature. Certain persons have an affinity for one another, and the saying, "Birds of a feather flock together," is a splendid illustration of what I mean. The two ideas of father and son, ship and sea, holidays and pleasure have natural affinities with each other and so combine.

Ideas are more easily engraved on the mind when interest has been aroused, and if the subject is not one that is enticing, then the stronger the will-power exerted to cause the impression to be registered in consciousness, the better will the reproduction be. Involuntary sensations are better than voluntary ones, as no will-power is required to impress them.

When two ideas have been thought of together and there is connection or relationship between them, they will harmonise and one of them will recall the other, even if the ideas are dis-

similar, *e.g.* a linen tablecloth spread out on the table at 5 p.m will suggest tea-time.

Two ideas which do not appear to be at all connected can be connected by an intermediary idea which is related on either side to the two said ideas. By this means buried thought is often revived.

Ideas cannot be recalled unless they are associated with other ideas. A single idea will make no lasting impression. A good example of this will be found where students of phonography try to memorise single logograms, instead of associating one logogram with another. The fault is due to so many inefficient people pretending to teach this subject who have not the faintest idea of teaching according to the laws of nature, psychology, or the principles of teaching. The reason logograms are forgotten is because there is an absence of a coupling idea.

The power to recall ideas quickly and easily depends upon focussing the attention and getting a clear impression in consciousness.

Concentration.—If the impression in consciousness is feeble through lack of attention, then the idea will be difficult to bring to consciousness again, and the result will be a weak concept.

We must concentrate our minds on what we wish to remember. Interest is a necessary part in receiving impressions, and the greater the interest the less will be the attention required. There are three essentials to a clear, deep, and lasting impression, namely—

Interest.

Attention or activity of mind.

Cognition of knowledge or awareness of the object.

Cognition or Awareness.—This is the first impression received in consciousness by means of the senses, which should be as

vivid and clear as possible. Nothing should be allowed to interfere with the reception of the impression. The powers of concentration will be strengthened by practice and interest. Sometimes when we read a book there are parts we glide or slide over; it is those parts that will not easily be recalled, because the impression received of them is as if recorded in sand.

Ideas cluster or gather round each other and form communities, sort themselves out, and have an affinity for one another.

When studying, always compare one fact or idea with some other; they may be similar, opposed, one the cause of the other, or they may be connected by a common link as to time and space. Do not compare more than two ideas at a time regarding an object, or confusion will arise. Of course, ideas can be connected or associated like the links in a chain, but never more than two at a time.

If we cannot find an idea to associate with the one we wish to remember particularly, then it will be necessary to adopt an intermediary idea—that is, one idea connecting two other ideas, which cannot be connected without the intermediary.

phraseology, but take out the essence of the matter. This prevents working mechanically and generates interest.

Play with words, *i.e.* change one word for another of similar meaning (synonym).

Note-Books.—Making notes is an art that requires much practice to obtain the best results. The difficulty lies in writing down what is essential and important, and yet almost as abbreviated as the index to a good text-book.

A special note-book should be kept for each subject of study, and only the left-hand folio used, whilst the right-hand folio is left blank for the purpose of further and later notes or revisions of the notes that have been previously written on the left-hand folio. It is a good practice to write down in the notes on the left-hand side folio questions that require looking into, either by referring to the text-book or by obtaining further explanation from the tutor. The answers to these questions should be written in note form on the right-hand side folio and directly opposite to the question on the left-hand side folio.

The proper use of a note-book is to throw light upon the subject and for guidance in future study, revision, and ready reference in later years. Further, well-kept notes are at a later time indeed invaluable, because they not only give useful information, but the act of referring to these notes has a tendency to sharpen the memory and so bring to the surface many submerged ideas through the association of similar ideas: one idea will draw out many others on the same or a similar topic.

Note-books are of no value whatever unless the notes are afterwards used to assist the student in writing out a summary or revision of the lessons. The plan of carefully copying extracts from a text-book is a foolish and wicked waste of time, as this simply becomes a mechanical process of copying. The notes should be in the language of the student who is

making them. It is not the words of the writer that are important, but the thoughts or ideas that the words convey.

The best way to make notes of a text-book is to read the book through, and then on reading it a second time to mark in the margin of the book the valuable passages ; then make an index of references at the end to be used when consulting the book later. Extracts should never be copied from a text-book.

A good plan is to read through the whole of a chapter, then close the book and write out in your own words as much of the contents of the chapter as can possibly be remembered. This method will force a student to think about the subject he has read, and cause him to turn over the subject in his mind and so make the ideas his own.

" Men seldom read again what they have committed to paper, nor remember what they have so committed one iota the better for their additional trouble. On the contrary, I believe it has a direct tendency to destroy the promptitude and tenacity of memory by diminishing the vigour of present attention and seducing the mind to depend on future reference." (Sydney Smith.)

In attending a lecture or oral lesson do not attempt to write down disjointed phrases, as it is probable that the notes taken will be unimportant and disconnected. Students should be thinkers and not simply recorders of notes : I am afraid this last remark will apply very forcibly to many of the lectures by the professors at our universities.

Oral Instruction.—The best way to impart knowledge and store the memory is by oral exposition, followed by questions asked from the students and answered by the tutor at the blackboard. Along with this oral instruction students should treasure and use their note-books, work out questions with closed books, reflect upon and turn over in the mind what has been dealt with by the tutor. A text-book should only be used

as a guide, philosopher, and friend. Students who rely on postal packets from a correspondence college or text-books are working under serious disadvantages, and if they are successful they deserve much credit for their hard work and sustained interest.

When the public realise and get a truer idea of the value and nature of oral instruction, with its great advantages as compared with the so much advertised training by correspondence courses, they will learn to appreciate the advantages of having a live tutor whose very expression and sympathy with students is so absolutely essential to their progress in the studies they are engaged in. Spoken language is always simpler and easier to understand than written, laboured, detailed matter. The oral tutor can explain points in different lights and use various words and phrases to explain a single point. Oral tuition is the vitalising power in all education; it is interesting, it makes a call on more than the one sense of sight, and in fact is the *sine qua non* for success.

How to Study.—In studying a particular work, a chapter should first be read through to get a general idea of its contents. It should be read again and notes made, then condensed into as few words as possible. When the whole work has been studied in this manner the student's notes should be read again and again until their import is fixed in the mind.

After a lapse of at least twenty-four hours some questions should be attempted under examination conditions; no reference being made to text-book or notes, and the time taken to work the questions being entered at the head of the paper.

Learning by Heart.—There are certain laws which have been arrived at deductively by the great thinkers and workers of the past. These fundamental laws, if learned thoroughly, will save a student much thinking and loss of time; generally speaking, however, it is much better not to learn most things

verbally, but by reasoning and reflection. Of course, the memory is all the richer for being stored with wisdom in the shape of maxims, beautiful verses of poetry, and formulas of great writers. What is learned verbally is not much use unless learned so thoroughly as to be recalled immediately and understood. Morning is the best time to commit anything to memory, but many find that it suits them better to go over a task before retiring to bed, and in the morning it all comes to them quite clearly. What is turned over in the mind often is what is remembered best. Knowledge gained, retained, and reproduced to instant call has in all cases been turned over many times in the mind in the same manner that a cow chews its food over and over again. If there is no interest in the subject, then there will be no inclination to turn the subject over in the mind and focus the attention on it.

Best Time for Study.—Our physical condition is at its best from 6 a.m. to 12 noon and from 6 p.m. to 10 p.m., and at its lowest point from about 10 p.m. to 4 a.m. and 12 noon to 3 p.m. From this it will be easily seen that early morning and evening are the best times for study. Immediately after meals, the digestive organs require the blood pressure, and in the meantime the brain should be resting. Studying during a meal, or directly after it, is a sure way of bringing on indigestion in various forms.

Cram.—This practice is the direct result of competitive examinations. The system of cramming is sometimes used for revising rapidly before the examination the principal parts of months of careful study. To try to focus hardly acquired knowledge is quite advantageous and useful to a student, and if the note-book has been carefully kept, then it is invaluable at this stage.

One method of cramming sometimes adopted is to select carefully the parts of a study that are likely to be the subject

of examination and exclude non-essentials, but in this case a great deal depends on the value of the examination and the ability of the examiners to set questions that will test the true knowledge of the candidates and prevent the possibility of candidates getting through an examination by means of cramming only.

The Joint Matriculation Board gives a powerful incentive to cramming and encouraging students to memorise certain portions of the set books. Those with the best memories stand a better chance than those who, although not blessed with the best memories, may have digested the most knowledge.

Rapid learning is not always crammed, for, if the new ideas are turned well over in the mind, and they are quickly associated and accepted or apperceived, then this assimilation of the old and the new is good ; but if new ideas and facts are stored in the mind without being apperceived or properly understood, *i.e.* learnt by rote, then this process is pure "cram." A good examiner that is worthy of the name will be able to detect those who have been prepared by this forcing process just as easily as we can detect when rhubarb has been forced. No examination should encourage the cramming of lists of names, dates, or other tabulated matter, but should be a test that will be a guide to teachers and students in the future to cultivate learning and the correct kind of teaching.

There are many small examining boards, chiefly amongst the commercial teachers' societies, that have no educational tests beyond the preliminary examination, that appoint their friends and associates as examiners, independent of their fitness, and the result is, of course, inefficiency. The Society of Arts examinations are notorious for their requirements of fast writing, and the candidate that can write the quickest, providing his writing is neat and clear, will usually obtain a medal in the particular subject he is sitting for.

It would be much better for the country, and there would be a great saving of time effected, if the autocratic matriculation boards of London University and elsewhere adopted the example of the College of Preceptors by allowing students to sit only for the subjects in which they previously failed. There is neither common sense nor reason in asking a candidate to sit for five or six subjects a second time when he has already passed in all except one. The matriculation arrangements of to-day are particularly favourable to cramming.

Students who cram for a particular examination get such a distaste for knowledge that education afterwards is forsaken by them and, consequently, they give up further efforts for passing higher examinations. My advice is seek wisdom and knowledge with a strong interest, and all else will take care of itself.

Mnemonics.—This is a Greek word for memory. Mnemonics are so fearfully mechanical that they are not much good to an intelligent student; they turn study into a lifeless and mechanical thing. They may be all right in theory, but in practice students invariably feel a loss of freedom of thought when using them. A mnemonic aid must be extremely good to be of any value at all: in fact, if you forget the method of using the connecting link or the actual mnemonic, then it is entirely valueless.

Mnemonics were cultivated by the Greeks, and the Romans valued them as they helped them in public speaking. The underlying principle was the association of facts to be remembered by divisions of space, as we might make use of a diagram to learn dates. Later, the system of associating letters with figures has been commonly resorted to. Rhyme and alliteration have also been used, as in the well-known lines "Thirty days hath September," etc. Mnemonics can only have a limited value, because these systems puzzle instead

of assisting the memory. Natural associations are far better than the application of keywords, and natural methods must always be superior to any man-made artificial systems.

The best plan of all is to concentrate the mind on the subject-matter to be digested, carefully selecting in notes as already explained the important points, and then arranging the notes and linking part with part. The only way to success is by well-sustained *interest*, by steady work, by getting a true idea of the subject, and by understanding the meaning of every word used.

Nervousness.—This is very often caused through over-study, confinement, and self-consciousness, which can be remedied by physical exercise, practising sitting for previous and similar examinations, and plenty of breathing exercises. A valuable means of overcoming nervousness is to hold frequent discourse and discussion with a good tutor, as his enthusiasm and personal interest dispels wrong impressions and creates confidence. As the result of the tutor generating interest in the student's mind, the self-conscious feelings are lost in interest for the subject in hand.

How to Pass Examinations

Examinations.—The written examination system is of comparatively modern growth in this country: it commenced about the beginning of the nineteenth century. Many years ago examinations were conducted by disputation; this system is even now kept up in some countries. The change from disputation was to *viva voce*, and then later to the printed questions. In 1827 a syndicate was appointed to make new regulations and conditions for examinations; one of the conditions being to have printed questions so as to fix the future reading and studies of students in a certain direction. Oxford University adopted the revised system of examining by written answers

about eighty years ago, and in 1858 the London University made its examinations and degrees open to all irrespective of where the students were trained. This practice revolutionised the examination system and caused other university colleges to be started.

For the examinations of secondary schools the College of Preceptors set the ball rolling, and the Society of Arts followed, also Local Examination Boards of Cambridge and Oxford. The same idea was applied to primary schools under the Revised Code of 1861, when "payment by results" was instituted. This system of examination has had many critics, and, to a certain extent, they are quite correct in their judgment that independent thinking has given place to book knowledge and cramming.

Failure to pass examinations arises from the following causes :—

1. Inexperience in sitting for examinations.
2. Faulty English, both as regards orthography and composition.
3. Failure to present to the examiner the exact ideas that the student wishes to convey.
4. Not answering certain questions which are obligatory.
5. Not carrying out all the rules of the examination as explained on the question paper.
6. Nervousness.
7. Weak memory.
8. Incomplete answers.

When sitting for an examination it is advisable to leave off studying fresh matter a few days before the examination, as it takes time for fresh knowledge to be assimilated, correlated, and sorted out in the mind and thought about, but revision even up to the day previous to the examination will not do any harm.

Experience at Previous Examinations. — If possible it is advisable to experiment or gain experience by sitting for other examinations which are similar to the one the student desires to pass, and thus through experience nervousness will be lessened and the rules and regulations of the examination will be better understood.

Practise Answering Questions.—Every student sitting for a written examination should practise answering questions and have them criticised orally by a tutor. Written corrections are very poor helps compared with oral explanations and criticisms.

English.—To be able to handle the English language freely, clearly, and tersely, along with perfect spelling and handwriting that can be easily read, is the best asset an examinee can have, assuming, of course, that he has the requisite knowledge.

Wordy answers without point or information are nearly useless. Many students fail to score high marks because in answering the questions their English is too ambiguous, or too many pronouns are used. It is better to repeat nouns than to submit a hazy answer. Knowledge is not much use in a written examination unless there has been plenty of practice in answering questions in such a way that there is no doubt in the examiner's mind as to the meaning or application.

Illustrated Answers.—It is a good plan in nearly all examinations to illustrate the answers by sketches, maps, graphs, or any other illustrative methods. Every one can understand a sketch better than so many words, which are after all but symbols, and an examiner delights in graphic answers of this description. As an example, take a question like this: "Explain how oxygen is carried to the cells of the human body." A sketch showing how oxygen is received into the lungs, then into the blood, and carried by the aorta and its tributaries to the cells, would explain the process much better and quicker than a long essay on the subject.

Misread Questions.—Many students fail in examinations because they misread the questions, and instead of pausing at punctuation marks obtain wrong impressions of what is required. Further, if answers are not very clear they may easily be misinterpreted by the examiner. A good plan is sometimes to underline special words as a hint to the examiner to emphasise those particular words when reading the answers, and thus make clear the meaning desired.

First Place.—If a student desires to obtain the first place at the examination, then let him have a well-exercised body, a clear mind, strong interest, and the will to conquer. Every minute of fixed attention and every act of obedience to the will is a clear gain.

Hints for Study.—Make a decided start.

Procrastination is the thief of time.

Allow no exceptions, especially at the outset. One exception undoes much good work ; perfect regularity means certain success.

Expect, and give prompt attention to the will to do.

Procrastination is a bad habit and leads to failure.

Tabulated or Graphic Answers.—This method is recommended because it usually presents a subject accurately and saves much literary work. Further, it is very important to watch one's spelling, and if a student is weak in this direction a dictionary such as Dr Annandale's should be at hand to refer to if any doubt exists as to the spelling. Spelling errors are very unfortunate, as they cause the loss of marks and rob the candidate of the chance of getting near to the top of the list or taking first place or honours.

Will.—A will is healthy when it does whatever is worthy, promptly, and with all its might. A healthy body and a pure mind are splendid helps to will-power, making one strong or energetic enough constantly to follow up worthy ideas and realise them.

CHAPTER IX

MENTAL EFFICIENCY AS AFFECTING SALESMANSHIP

In the general chapters on Physical Efficiency and Mental Efficiency will be found, I hope, something that will be instructive and beneficial to my readers; but I do not think a book of this kind would be complete without a chapter on Salesmanship, because so many are salesmen, either for themselves or for large firms who depend on salesmanship for their very existence.

A salesman must have a clear and logical mind, be honest to his client, his firm, and himself. To have a sound mind it is necessary to have a healthy body, or else the elasticity and pleasant demeanour will not be in evidence. It is no use facing a prospective client with a slovenly appearance, or a funereal face, or if representing a firm that cannot carry out orders properly or to time when the orders are received, or are inefficiently equipped as regards tools, and have no proper costing system and no past experience to guide them.

The conduct of commerce at the present time is vastly different to the crude methods which prevailed a century ago. Competition is so strenuous that the application of psychological methods is of great assistance to the man of business who wishes to be successful, and to attain success it is necessary to understand the processes of the mind, so that one may be enabled to judge accurately and quickly the minds of employees, colleagues, clients, in fact of everyone one has to deal with.

A man should first of all know himself, *id est*, know his own mind, by means of introspection, and then with that experience and knowledge will be able to decide important issues correctly, and by observation and interpreting the behaviour of others read their conscious life. Psychology is a science that carries out its researches in a far more systematic and precise way than is needed for the purposes of the ordinary individual in common everyday life.

The application of psychology to salesmanship is important, as there is such a thing as the psychology of a place, a town, a country, resulting from the mentality of the people living there or doing business there. For example, the town I live in is notorious for broken promises and unkept appointments—betokening a disregard of personal obligations. The geographical conditions of a country will affect the character of a whole race. The mountainous country and difficult tillage of Scotland has made Scotsmen the best colonists on earth, and their strict religious principles have produced many benefactors of humanity.

Applied psychology in commercial life is only necessary in the cases where mind affects mind. Workmen who have a set task to perform deal with things, and even highly skilled men deal with things and not minds, so that they need not trouble about applying psychology to their daily occupations; but in the case of principals, officials, and salesmen a sound knowledge of the workings of the mind is of the greatest value. Mind influences mind, and the greater the knowledge of the mind's operations possessed by those who are in control of a firm's business, the better will be the annual report of the year's work, and the more gratifying will be the perusal of the balance-sheet to the shareholders.

I consider that to the sales manager and his staff the application of psychological principles is of greater advantage than

to any other section or class of workers in commercial life, because they not only meet men, but by psychological knowledge know how to influence mind and so bring about good results by which the whole firm will benefit, either directly or indirectly.

Psychological principles, however, are only a help when all other conditions and requirements are satisfied. For instance, it is no use trying to sell an obsolete machine, bad fish, or useless articles, and no amount of reasoning will convince a buyer of the advantages of purchasing such commodities. Further, if a salesman meets a previously dissatisfied buyer who has been hoodwinked or deceived by the salesman's firm in the past, then no amount of psychology will help him to achieve success.

It follows, therefore, that if a sales manager is to be successful and helped by psychology, he must have a sound organisation behind him. Such an organisation will

Deliver goods when promised.

Fill orders in accordance with the customer's requirements.

Send articles equal to or better than the sample or samples submitted.

Debit the buyer correctly.

These are only a few of the conditions that must obtain before a sales manager can dream of the successful application of psychology.

Application of Auto-suggestion as well as Outward Suggestion. —It is quite a common practice for individuals to smile when they slip on a pathway or accidentally knock themselves, or if they just miss taking an order, or receive rebuffs when canvassing for fresh customers. On all these occasions their conduct is attributable to the will asserting itself when roused by the section of inborn humour, in subconsciousness. It seems ludicrous to smile at one's own misfortune, but the

position is quite logical when analysed, for by the rule of self-preservation in the physical sense, so also in the mental sense the mind will not, if the brain be healthy, be crushed by reverses, but will with the aid of will or motive power produce a position that retains the mind's balance. To this end auto-suggestion is used, and the following ejaculations may be found helpful in times of despondency :

" Keep on keeping on."

" Better luck next time."

" Let them all come."

" Cheerio."

" Keep on smiling."

" Away with melancholy."

And many more. This power of casting out devils of despair is an invaluable aid to all, and helps us to preserve our mental balance. It is possible to sit down in the evening in a comfortable arm-chair and by means of imagination or collecting pleasant ideas from the storehouse of subconsciousness to picture wonderful success and generate pleasure, and if more people practised this before retiring to rest instead of eating heavy suppers, a better race of people would be the result, both as regards health, energy, and pleasantness to others who may require a bright smile from sparkling eyes. It is possible for a business man or salesman to do as I state, intoxicate himself mentally with these glowing pictures instead of indulging the palate with strong drink or food before retiring for rest. Further, why not auto-suggest pleasant ideas and so rouse up from the subconscious part of mind a legion of " slumbering " ideas that are waiting for the stimulus of such ideas to be brought into the focus of consciousness.

" Birds of a feather flock together " is literally true as regards the mind, as is proved by concepts which appear before the bar of reasoning and judgment, and the result either acted on at

once by means of the will or toppled over into the reservoir of subconsciousness, reserved for future use when associating ideas rouse them to action.

Conscious Mind and the Subconscious.—There are two phases of the mind, and yet only one mind with many processes. At this stage it is as well to explain that the brain, which weighs anything from two to four and five pounds, is composed of minute cells which receive food and nourishment from the blood. The mind acts on the nerves in such a way that certain lines are formed which can convey the same ideas more easily with each repetition. It is possible for a brain to have paths for thought which will only carry certain collections or bundles of ideas, and all others are impossible. A notable example of what I mean is seen in the case of Darwin, the naturalist, who in later life regretted keenly that the part of his brain that would have carried melody was atrophied through not being used in youth. Most business men are in this poverty-stricken condition later in life, especially those who have not had a liberal education. A well-balanced mind will embrace all sections of knowledge. Here we have a splendid argument for every child receiving a secondary education or a liberal education from the age of eleven or twelve. The argument in favour of training a child vocationally in early years is clearly wrong. The conscious mind is the state of the mind when reasoning is in operation, or when concepts rise up into the focus of consciousness, but the subconscious mind is a state of holding in suspense all the processes or judgments of a lifetime, and also the effects of heredity and environment. In some cases the paths of the cells are well formed for the passage of musical ideas, and so we can account for geniuses in various departments of life. A salesman by his environment and experience will, in course of time, gather a collection of ideas on salesmanship, and will have formed a path for

arithmetical or mathematical calculations. To be successful a salesman must be "a man of many parts."

Psychology and Sales Management.—The application of the principles of psychology to choosing good salesmen, on which the success of all business and firms so much depends, is very useful. The older school of principals and sales managers still depend on phrenology and like sciences to guide them. A good salesman must appeal to his customer's imagination and so operate that the will of the buyer will be roused by an appeal to the imagination. The ideas introduced will, of course, include future profits, pleasure, or advantages. Many principals consider it a gamble when picking salesmen and leave it somewhat to chance; but what about the ideals, character, and mind of those chosen? Some leave it to external appearances, and others to the gift of the tongue, *i.e.* being able to talk. Is this sufficient? The physical characteristics of a man as judged by phrenology, tailors, and society ideals are misleading, so that the only true way to decide is to get at the mind of the applicant, and the only way to get at the mind is by conversation, and from experience of introspection the character of the man may be thus accurately gauged. Very often a principal will unconsciously judge a man from his own pre-conceived ideas of ability, whereas the crux of the whole matter is he must know his own weaknesses and know how to find them in others that he is probing. The real value of a man cannot be judged by appearance only, but by the mind and spirit as evidenced in conversation, and by the impression created by his personality. It is here that psychology enables one to judge human nature; education, environment, hereditary traits, and dominating ideas or principles have all an extremely important bearing on selling, and can only be accurately judged through the mind.

Psychology of a Town or District.—It is a fact that people

have the peculiar characteristics of the place they live in, they not only inherit or cultivate the dialect but also the general tone of the place. In a fishing district you will find the minds of the people are interested in nets, boats, etc.; but in a farming district it will be by means of the weather, or such topics as seeds, manures, etc., that one can get at the minds of the people.

Every percept that is apperceived is accompanied by feeling which may be either pleasant or unpleasant, repellent or attractive, good or bad. There is no idea that does not produce some feeling, and every idea apperceived is classified in the mind as satisfactory or unsatisfactory. It is this aspect of the subject that is important to every business man who wishes to create a good impression on his subject. Further, every percept or idea that enters a person's mind is reflected in the speech, the movements of the hands, the eyes, the muscles, and especially the finer muscles of the face. These expressions a psychological salesman will be able to detect very rapidly and know if he is on the right lines in approaching his subject whom he is trying to convince to become a buyer. It is very difficult to get a man to listen who does not think he requires the goods the salesman has to offer, and who has had other salesmen worrying him previously. If a salesman makes a careful study of the psychology of his subject, he will often find that a second visit to a buyer may bring successful results, when the first proved fruitless.

The five senses—sight, hearing, touch, smell, and taste—are called the gateways of knowledge, and it is through these senses that all knowledge we possess is obtained by sensations and percepts, but most people differ in their method of receiving sensations into their minds. There are those who are called *visiles*, they must see a thing to perceive properly; *audiles* must hear to comprehend, and so on. As most of our mental

impressions and ideas are received by means of the sense of touch, *i.e.* by personal contact with objects, it will be necessary to discover whether our subject-buyer is influenced most in this manner, and if so, then he will wish to see and actually feel the articles we are offering. It is for the salesman to find out with the aid of his knowledge of the senses by which gateway it will be best to approach the mind of his subject, and work accordingly. The safest plan is to approach the subject by a combination of appeals to all the five senses, and to emphasise whichever of the five appears to be the most receptive in any individual. When interest is aroused then a salesman may bring forth proof and illustration to cause the buyer to use his will to turn his interest into judgment, conviction, and decision, resulting in his placing an order.

Large business firms in America now realise the value of experimental psychology as practised by the professors at the universities, and it is wonderful how nearly theory and practice have met each other. This is a clear proof of the advantages to be derived from psychology, and no class of men should benefit from it more than the commercial, as it will improve their minds, sharpen their reasoning and judgments, and make them realise that man is but human after all ; and last, but not least, the wealth that is obtained by making use of the principles of psychology will be won by real ability, rather than by craftiness and deceit.

One great help to salesmanship is to appeal to the artistic instincts of a prospective buyer, either by works of art displayed at railway stations, on hoardings, or in illustrated catalogues. Letter-paper should be of the best, and those who wish to create a good impression should utilise the services of steel engravers and letter-paper embossers.

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